

WHAT IS CLAIMED IS:

1. A process for cleaning soiled garments or fabric materials comprising the steps of:

A) placing said soiled garments or fabric materials into a sealable and pressurizable device;

B) introducing into the device a cleaning agent comprising CO₂, which comprises a fragrance system;

C) contacting said soiled garments or fabric materials with said cleaning agent to remove undesired stains or soils and to deposit a substantive long lasting fragrance system on said garment or fabric materials.

2. The process according to Claim 1, wherein said CO₂ is liquid CO₂.

3. The process according to Claim 1, wherein said CO₂ is supercritical CO₂.

4. The process according to Claim 1, wherein said fragrance system comprises fragrance ingredients that are determined to be substantive to garments according to the following mathematical equation:

$$y = a_0 + \sum a_n x_n.$$

wherein y is defined as the predicted relative fabric value affinity of an aroma chemical on having a range of from about 1 - 7 with 7 being the most substantive;

wherein x_{1-n} are defined as molecular descriptors derived out of COSMO RS calculations; n is defined as number of descriptors used in the said equation,

wherein a_{0-n} are defined as coefficients derived from linear regression analysis.

5. The process according to Claim 4, wherein $a_0 = 0.2771$, $a_1 = -0.0042$, $a_2 = -0.0094$, $a_3 = 0.0061$, $a_4 = -0.2738$ and $a_5 = -0.0377$; and $x_1 =$

σ -moment M_2 , $x_2 = \sigma$ -moment M_3 , $x_3 = \sigma$ -moment M_4 , $x_4 = f_{don}$, and $x_5 = \Delta G_{Cosmo}$; and $n = 5$.

6. The process according to Claim 4, wherein at least 60% of said fragrance ingredients have a relative fabric affinity value (y) of at least

4.

7. The process according to Claim 6, wherein at least 75% of said fragrance ingredients have a relative fabric affinity value (y) of at least

4.

8. The process according to Claim 7, wherein at least 85% of said fragrance ingredients have a relative fabric affinity value (y) of at least

4.

9. The process according to Claim 4, wherein at least 50% of said fragrance ingredients have a relative fabric affinity value (y) of at least

6.

10. The process according to Claim 9, wherein at least 60% of said fragrance ingredients have a relative fabric affinity value (y) of at least

6.

11. The process according to Claim 10, wherein at least 70% of said fragrance ingredients have a relative fabric affinity value (y) of at least

6.

12. The process according to Claim 1, wherein said fragrance system comprises additional additives selected from the group consisting of anti-microbial ingredients, UV filters, anti-static ingredients, optical brighteners, cooling agents, and warming agents.

13. A fragrance system for use in a liquid CO_2 cleaning system comprises fragrance ingredients that are determined to be substantive to garments according to the following mathematical equation:

$$y = a_0 + \sum a_n x_n.$$

wherein y is defined as the predicted relative substantivity of an aroma chemical on having a range of from about 1 - 7 with 7 being the most substantive;

wherein x_{1-n} are defined as molecular descriptors derived out of COSMO

- 5 RS calculations; wherein n is defined as number of descriptors used in the said equation, wherein a_{0-n} are defined as coefficients derived from linear regression analysis.

14. The process according to Claim 13, wherein $a_0 = 0.2771$, $a_1 = -0.0042$, $a_2 = -0.0094$, $a_3 = 0.0061$, $a_4 = -0.2738$ and $a_5 = -0.0377$; and

- 10 $x_1 = \sigma$ -moment M_2 , $x_2 = \sigma$ -moment M_3 , $x_3 = \sigma$ -moment M_4 , $x_4 = f_{don}$, and $x_5 = \Delta G_{Cosmo}$; and $n = 5$.

15. The fragrance system according to Claim 13, wherein at least 60% of said fragrance ingredients have a relative fabric affinity value (y) of at least 4.

- 15 16. The fragrance system according to Claim 15, wherein at least 75% of said fragrance ingredients have a relative fabric affinity value (y) of at least 4.

17. The fragrance system according to Claim 16, wherein at least 85% of said fragrance ingredients have a relative fabric affinity value (y) of at least 4.

- 20 18. The fragrance system according to Claim 13, wherein at least 50% of said fragrance ingredients have a relative fabric affinity value (y) of at least 6.

19. The fragrance system according to Claim 18, wherein at least 60% of said fragrance ingredients have a relative fabric affinity value (y) of at least 6.

- 25 20. The fragrance system according to Claim 19, wherein at least 70% of said fragrance ingredients have a relative fabric affinity value (y) of at least 6.

30 21. The fragrance system according to Claim 13, wherein said fragrance system comprises additional additives selected from the group consisting of anti-microbial ingredients, UV filters, anti-static ingredients, optical brighteners, cooling agents, and warming agents.